IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	§	
	§	
Pham, Mahn Hung	§	Group No.: 2113
	§	
Serial No.: 09/950,026	§	Examiner: Yolanda Wilson
	§	
Filed: September 10, 2001	§	
	§	
Invention: Computer System with Improved	§	
Error Detection	§	

RECEIVED

AUG 3 0 2004

Technology Center 2100

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF DALE DUTY
SUBMITTED PURSUANT TO 37 C.F.R. § 1.131

I, Dale Duty, hereby declare and state that:

1.   I am a Senior Patent Paralegal at Dell Inc. ("Dell"), and I am responsible for the administration of Dell's invention disclosure program. I am knowledgeable about the system that Dell has in place for receiving invention disclosures from Dell inventors, approving an invention disclosure for the preparation of a patent application, and the assignment of an approved invention disclosure to outside counsel for the preparation of a patent application.

2.   A redacted copy of a Dell invention disclosure is attached to this Declaration as Exhibit A. This invention disclosure has been titled "Stamping Information Electronically Inside Failed Memory Module" and has been assigned Dell reference number DC-3106. As indicated by the date-stamp in the upper right hand corner, this invention

disclosure was received by Dell's invention disclosure system on April 6, 2001. This invention was submitted by inventor Manh Hung Pham.

3. On May 7, 2001, the DC-3106 invention disclosure was approved by Dell for the preparation of a patent application. On May 18, 2001, the invention disclosure was submitted by Dell to the law firm Baker Botts L.L.P. for the preparation of a patent application.

4. I hereby declare that all statements made herein of my own knowledge are true and that all statements made herein on information and belief are believed to be true. I declare that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this __30th__ day of July, 2004.

_____
Dale Duty

Exhibit A

INVENTION DISCLOSURE FORM
(Rev. 11/01/2000)

INVENTION TITLE:

Please supply a brief and descriptive title here	Stamping information electronically inside failed memory module

INVENTOR INFORMATION:
(Must be filled out completely)

Inventor Employee No.:	20315	Full Legal Name:	MANH HUNG PHAM
Home Phone:		Work Phone No.:	512-728-4513
Reporting Director:	Dick Hunter	Department:	AFC General Admin
Reporting VP:	Dick Hunter	Department:	AFC General Admin
Indicate if Inventor is Non-Dell employee contractor/consultant/terminated:			
Are you a Citizen of the U.S.?	Yes	If no, of which country are you a citizen?	

DEVELOPMENT PARTNER/CONSULTANT:

Was the invention developed in conjunction with a development partner or consultant that contributed to the invention?	No
If YES, please list here:	

*PLEASE DO NOT SKIP THIS PART. This information is used to determine Dell's legal rights in the invention. **IMPORTANT!** - If you know for a fact that your idea was embodied in a product offered for sale or used by Dell more than a year ago, then please tell us now; otherwise you will have to refund your invention award to the company at a later date.*

FIRST DISCLOSURE, USE OR OFFER OF SALE OF THE INVENTION:

Date of conception	11/2000	Invention first described in:	
Date of reduction to practice (first working model completed):	TBD	Current location of model:	
Has the invention been disclosed outside of Dell?			No
If yes, to whom was the disclosure made?			
Was the disclosure made under a Non-Disclosure Agreement (NDA)?			N/A
Planned date of first offer of sale of product using the invention			TBD
Actual date of first offer of sale of product using the invention			TBD
Date of first production use of the invention or ship date			TBD

INDUSTRY STANDARDS / STANDARDS COMMITTEES:

Does this invention relate to or incorporate any industry standards?	No
Which standard?	
Name of standard setting committee:	
Is Dell a member of this standard setting committee?	N/A
Name of Dell's representative to the standard setting committee:	

COMPLETE WRITTEN DESCRIPTION OF INVENTION:

Prepare a written description of your invention using the outline below. Just fill in the blank after each topic. Adjust the amount of space for each topic as needed. Be sure to include any sketches, diagrams, flow charts, drawings, etc. which will aid in understanding the invention. :

a) THE PROBLEM

Give the ability to the host computer to record and to check the failure condition and environment of its own memory module(s). It also allows the repair center and the manufacturer to have the trace ability and the failure condition of each individual failed memory module once it arrives to them, even the case that all paperwork is lost.

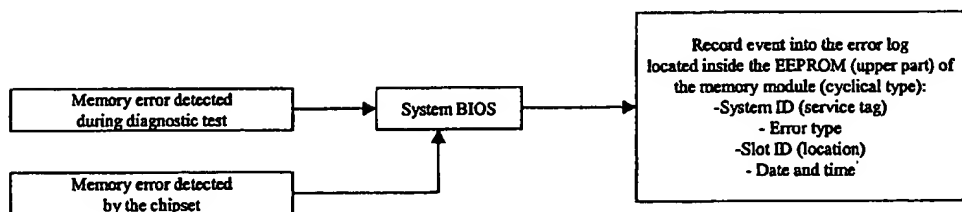### b) THE PRIOR METHODS/APPARATUS USED TO SOLVE THE PROBLEM

The closest way to solve this type of problem on failed memory module is a written tag issued with each failed unit. The closest similar technology on recording electronically the fail log is used on hard drive. In this particular case, the fail log is written in a reserved location.
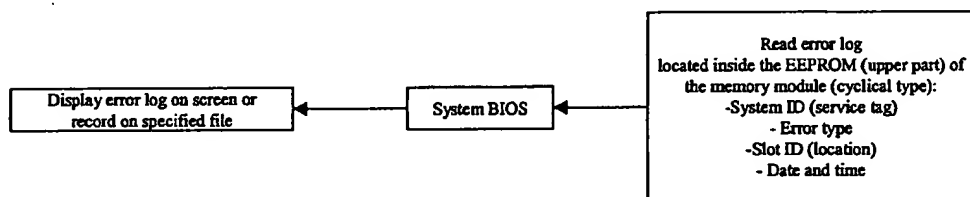
c) YOUR PROPOSAL TO SOLVE THE PROBLEM

- Up to now, all memory errors messages, location and system environment are displayed on the screen, and some time, recorded on the non-volatile memory of the motherboard. On this proposal, the information will be recorded on the un-used portion of the non-volatile memory of the memory module in cyclical log form. The host computer can access to this log to create, update or read the information via BIOS commands.
- In this proposal, each failed module will now have its own individual log that is part of the hardware. The failure information and condition will stay internally with the module almost permanently until it is erased or over-written by a host computer, a tester or a device that can access to the non-volatile memory device (EEPROM). The host system can now use the log to verify the condition of the memory module on each bring up. The memory module manufacturer now can use the log in complement with the existing tagging system to study the failure mode.
- With this proposal, DELL will have the advantage on time reduction during trouble shooting and replacement of failed memory modules, a better way to document the failure on the manufacturing line. In the field, this proposal will help to reduce the number of unnecessary dispatches, a better diagnostic tool and a complement to the existing way to document failure at customer site.

d) DRAWING, SKETCH

Error recorded into the log inside the EEPROM of the memory module

```
┌─────────────────────────┐
│ Memory error detected   │──────┐
│ during diagnostic test  │      │         ┌──────────────┐        ┌─────────────────────────────────────┐
└─────────────────────────┘      ├────────▶│ System BIOS  │───────▶│ Record event into the error log     │
                                 │         └──────────────┘        │ located inside the EEPROM (upper part) of │
┌─────────────────────────┐      │                                │ the memory module (cyclical type):  │
│ Memory error detected   │──────┘                                │  -System ID (service tag)           │
│ by the chipset          │                                       │   - Error type                      │
└─────────────────────────┘                                       │  -Slot ID (location)                │
                                                                   │   - Date and time                   │
                                                                   └─────────────────────────────────────┘
```

Read back the log inside the EEPROM of the memory module (if available)

```
┌─────────────────────────┐        ┌──────────────┐        ┌─────────────────────────────────────┐
│ Display error log on screen or │◀───│ System BIOS  │◀───────│ Read error log                      │
│ record on specified file │        └──────────────┘        │ located inside the EEPROM (upper part) of │
└─────────────────────────┘                                 │ the memory module (cyclical type):  │
                                                             │  -System ID (service tag)           │
                                                             │   - Error type                      │
                                                             │  -Slot ID (location)                │
                                                             │   - Date and time                   │
                                                             └─────────────────────────────────────┘
```

WITNESSES: (Please list two Dell witnesses below.)
Each witness should at least read about and understand the invention. The best witnesses will also have observed the invention in actual operation.

| WITNESS 1: | Ray Rashid |

| WITNESS 2: | Greg Knight |